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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,244	04/02/2001	Sharat Singh	0225-0033.24	2665

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EXAMINER	
TUNG, JOYCE	
ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/825,244	Singh et al.
Examiner	**Art Unit**
Joyce Tung	1637

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) [X] Responsive to communication(s) filed on *Jul 22, 2002* .

2a) [X] This action is **FINAL.** 2b) [ ] This action is non-final.

3) [ ] Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) [X] Claim(s) *21-36* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) [ ] Claim(s) _____ is/are allowed.

6) [X] Claim(s) *21-36* is/are rejected.

7) [ ] Claim(s) _____ is/are objected to.

8) [ ] Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) [ ] The specification is objected to by the Examiner.

10) [ ] The drawing(s) filed on _____ is/are a) [ ] accepted or b) [ ] objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) [ ] The proposed drawing correction filed on _____ is: a) [ ] approved b) [ ] disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) [ ] The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) [ ] Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) [ ] All b) [ ] Some* c) [ ] None of:

1. [ ] Certified copies of the priority documents have been received.
2. [ ] Certified copies of the priority documents have been received in Application No. _____ .
3. [ ] Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) [ ] Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) [ ] The translation of the foreign language provisional application has been received.

15) [ ] Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) [X] Notice of References Cited (PTO-892)
2) [ ] Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) [X] Information Disclosure Statement(s) (PTO-1449) Paper No(s). *21*
4) [ ] Interview Summary (PTO-413) Paper No(s). _____
5) [ ] Notice of Informal Patent Application (PTO-152)
6) [ ] Other:

Response to Amendment

1. The amendment filed 7/22/2002 has been entered.

2. The rejections in the Office action mailed 3/28/2002 are withdrawn because of the amendment and argument.

NEW GROUNDS OF REJECTIONS

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 21-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim language "antibody binding compound", "cleavable linkages are each an olefin, a thioether, a sulfoxide, or a selenium analog of the thioether of sulfoxide", "antibody binding compound is a monoclonal antibody or polyclonal antibody", "reagent pairs", "first reagent", "second reagent" and "second antibody binding compound having a sensitizer for generating an active species" have no support in the specification. Thus it constitutes new matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 21-22, 26-28, 30-31, and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bocuslaski et al. (4,331,590) in view of Giese (Analytical Chemistry, 1983, Vol. 2(7) page 166-168).

Bocuslaski et al. disclose a specific binding assay involving employing an enzyme-cleaving substrate label in the formation of the labeled conjugate (See column 2, lines 5-9). The labeled conjugates comprise an enzyme-substrate portion, an indicator portion in which the conjugate is cleavable by an enzyme to produce a detectable indicator product (See column 2, lines 5-18) and binding components for antibody (See column 11, lines 24-25). This teaching

suggests that there is antibody binding compound on the labeled conjugates. A linking group through which the dye indicator is covalently bound to the binding component of the conjugate and cleaving enzyme is to cleave the glycosidic linkage (See column 2, lines 33-36). The assay is adaptable to the detection of any specifically bindable ligand and is particularly useful in the detection of haptens, including antibodies (See column 2, lines 40-43 and column 8, lines 39-62). The label is fluorescence (See column 5, lines 10-39 and column 6, lines 1-10).

Bocuslaski et al. do not disclose a second antibody binding compound in the set of probe as recited in claim 30. However, Bocuslaski et al. disclose several labeled conjugates for detecting several different ligands (See column 13, lines 23 to column 18, lines 25). Thus one of ordinary skill in the art would have been motivated to construct a set of pairs including an additional labeled conjugate as needed. In addition Bocuslaski et al. do not disclose the second antibody binding compound having a sensitizer for generating an active species to cleave the cleavable linkage as recited in claim 30. Since it is unclear what is meant by the phrase "a sensitizer", although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims, the teachings of Bocuslaski et al. suggest the limitations of claim 30.

Bocuslaski et al. do not disclose the labeled conjugate which has a mobility modifier as claimed in claims 21 and 30, but any molecule compound has mobility and based upon the labeled conjugate, there are 1-500 atoms selected from the group as listed in claims 21 and 30

(See column 5, lines 54-65). This teaching suggests that the labeled conjugate has mobility modifier.

Bocuslaski et al. do not disclose that the labeled conjugate which is released can form distinct peaks upon electrophoretic separation.

Giese disclose an electrophoric release tag which has the same components as the e-tag probe as recited in claims 21 and 30. The release tags comprise 3 molecular groups, known as 'signal', 'release' and 'reactivity' groups. The release group provides a site for specific covalent cleavage and the reactivity group attaches the release tag to a substance of interest (See pg. 166, column 1, first paragraph). Giese also addresses the benefit of using the tag (See pg. 166, column 1, third paragraph to column 2, first paragraph) and the potential usefulness in which the tag can be used for detecting antigen or haptens and the tag can be used for detecting several target simultaneous in a give sample (See pg. 167, column 1, second paragraph). The teachings of Giese suggest that the reactivity group of the tag must have an antibody binding compound as recited in claims 21 and 30.

One of ordinary skill in the art would have been motivated to construct a probe set or a set of reagent pairs comprising a plurality of e-tag probes at the time of the instant invention for detecting the presence or absence one or more target compounds as claimed because the labeled conjugate as taught by Bocuslaski et al. (See column 9 to column 10) or the electrophoric release tag as taught by Giese is very useful in the detection of one or more target compounds (See pg. 166, column 1, third paragraph to column 2, first paragraph and pg. 167, column 1, second

paragraph) . It would have been prima facie obvious to construct the probe set or the set of reagent pairs comprising a plurality of e-tag probes as claimed.

7. Claims 23, 25 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bocuslaski et al. (4,331,590) in view of Giese (Analytical Chemistry, 1983, Vol. 2(7) page 166-168) as applied to claims 21-22, 26-28, 30-31, and 33-35 above, and further in view of Breslow et al. (6,331,530).

The teachings of Bocuslaski et al. and Giese are set forth in section 8 above and Bocuslaski et al. and Giese do not address a cleaving agent is a sensitizer which generates an active species, singlet oxygen or said sensitizer which is capable of generating singlet oxygen when photoactivated as recited in claims 23 and 36.

Breslow et al. disclose a linker between two β-cyclodextrin molecules and that a photosensitizer is encapsulated within a matrix, wherein the cleavable linker is cleaved upon exposure to light (See the abstract). Singlet oxygen is produced to cleave the linker (See column 3, lines 47-51).

It have been prima facie obvious to an ordinary skill in the art at the time of instant invention to construct a probe set or a set of reagent pairs comprising a plurality of e-tag probes at the time of the instant invention for detecting the presence or absence one or more target compounds containing photolabile cleavable linkage which is photosensitizer and can produce singlet oxygen when photoactivated as taught by Breslow et al. because the active cleaving agent, singlet oxygen is used in the system for cancer therapy and this suggests that the active

cleaving agent must be very efficient. Thus, an ordinary skill in the art would have combined the teachings of the references to carry out the instant invention as claimed.

8. Claims 24, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bocuslaski et al. (4,331,590) in view of Giese (Analytical Chemistry, 1983, Vol. 2(7) page 166-168) as applied to claims 21-22, 26-28, 30-31, and 33-35 above, and further in view of Kameda et al (4,780,421).

The teachings of Bocuslaski et al. and Giese are set forth in section 6 above and do not disclose said cleavable linkage is cleavable by oxidation and the linkage is selected from the group consisting of olefins, thioethers, sulfoxides and so on as listed in claims 24 and 32.

Kameda et al. disclose an improvement in an assay which relies on the detection of a labeled, solubilized specific binding complex. The complex is labeled through a cleavable linkage (See the abstract). The linkage is disulfide, thioether or amide (See column 6, lines 24-28). The linkage is cleaved with reducing agent (See column 9, lines 33-37). Dihydroxy moiety is cleaved by periodate (See column 6, lines 29-33) (which is oxidation).

One of ordinary skill in the art at the time of the instant invention would have been motivated to apply the linker of Kameda et al. to the labeled conjugate Bocuslaski et al. or electrophoric tag of Giese because the method of Kameda et al. is an improvement in an assay involving a bond cleavable which permits an increase in sensitivity of these assays, as well as contributing to the ease performance (See column 2, lines 54-58). It would have been prima facie obvious to make the probe set as claimed.

9. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bocuslaski et al. (4,331,590) in view of Giese (Analytical Chemistry, 1983, Vol. 2(7) page 166-168) as applied to claims 21-22, 26-28, 30-31, and 33-35 above, and further in view of Boguslaski et al. (4,383,031).

The teachings of Bocuslaski et al. and Giese are set forth in section 6 above and do not disclose said cleavable linkage comprising ester linkage is cleavable by esterase.

Boguslaski et al. (4,383,031) disclose ester linkage in umbelliferone-biotin conjugate which is cleaved by esterase (See column 47, lines 53-63).

One of ordinary skill in the art at the time of the instant invention would have been motivated to apply the ester linker of Boguslaski et al. (4,383,031) to the labeled conjugate of Bocuslaski et al. or electrophoric tag of Giese because the method of Boguslaski et al. (4,383,031) is a highly convenient, versatile, and sensitivity homogeneous specific binding assay method (See column 3, lines 61-66) involving ester linker cleaved by esterase. It would have been prima facie obvious to make the probe set as claimed.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Joyce Tung whose telephone number is (703) 305-7112. The examiner can normally be reached on Monday-Friday from 8:00 AM-4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached at (703) 308-1119 on Monday-Friday from 10:00 AM-6:00 PM.

Any inquiries of a general nature or relating to the status of this application should be directed to the Chemical/Matrix receptionist whose telephone number is (703) 308-0196.

14. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Art Unit 1637 via the PTO Fax Center located in Crystal Mall 1 using (703) 305-3014 or 308-4242. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Joyce Tung

December 20, 2002

GARY BENZION, PH.D
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600